4

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,836	10/23/2003	Ivan Leichtling	MS1-1784US	6661

22801 7590 11/29/2006

LEE & HAYES PLLC
421 W RIVERSIDE AVENUE SUITE 500
SPOKANE, WA 99201

EXAMINER	
WOODS, ERIC V	
ART UNIT	PAPER NUMBER
2628	

DATE MAILED: 11/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/691,836	LEICHTLING, IVAN	
	Examiner	Art Unit	
	Eric Woods	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 February 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *24* is/are allowed.

6)☒ Claim(s) *1-23 and 25-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

The Final Office Action mailed on 15 June 2006 was incomplete. The After-Final Response submitted on 14 November 2006 will be entered.

The objection to claims 1, 22, and 24 stands withdrawn in view of applicant's amendment to the claims.

Claim 7 was not found to be allowable.

The rejection of claims 1-6 and 8-27 under 35 USC 103(a) stands withdrawn **in view of applicant's amendments to the claims only**.

Applicant's arguments and Remarks presented on 14 November 2006 are moot, as they are directed to the amended claims, wherein the rejections to those claims do not exist, since the amendment was entered.

Applicant has accepted the definition of the term 'synchronously' below by not challenging it in the response to the last Office Action. That definition will be binding for all further proceedings after the close of prosecution.

It is respectfully pointed out that the terms 'association' and 'related to' do not require any specific structural relationships, only that there be some type of unspecified relationship.

Allowable Subject Matter

Claim 24 stands allowed.

The following is an examiner's statement of reasons for allowance:

The added limitation to claim 24, which now clearly recites the added limitation of sequential order – which makes the claim very specific – along with the bandwidth-limited behavior, particularly clause (b)(ii), wherein the larger region is chosen and sent. Normally this behavior does not occur, because selecting a larger region can typically reveal visual content and/or graphics data of the surrounding desktop and/or windows, which could reveal data and/or information that such a user and/or application is not permitted to view or utilize (e.g. privilege escalation or permissions failure).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Definitions

The applicant in the claims uses the term "synchronously". This term does not have a definition in the specification. Specifically, it is unknown if this term requires real-time synchronization, or if it is used in a broad manner to simply require that events on the server and the client be updated, usually as practical (e.g. in high-latency and/or high packet-loss scenarios)(where practicality is entirely determined by the reference and the situation, such as in Panasyuk (4:1-12), where information concerning movement of the window is transmitted when it 'would not cause a significant computation burden on the node'. As such, examiner will interpret the term as broadly as possible. This was not clarified in response to the last Office Action, and it would appear to be reasonable to interpret it as above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 7-9, 14, 19-21, and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Panasyuk et al (6,437,803 A) in view of Spencer et al (US 6,877,027 B1).

As to claims 1, 20, and 25, (1 is method claim, 25 is computer program product claim that executes method of claim 1, and 20 is system claim implementing method of claim 1; additional limitations of system claim will be addressed in sub-clause after main body of rejection. Same grounds of rejection are therefore applicable against all three claims)

A method implemented at a server device, the method comprising: (Panasyuk clearly teaches a method for remoting with a client and a server, Figures 1 and 2, wherein

Panasyuk teaches a client / server configuration (1:13-25), and the invention utilizes a server and client (1:54-58))

-Gathering region data for displaying a region of a server desktop remotely on a client display, wherein the region data describe a shape and a position of the region; (Panasyuk reference clearly teaches that the system contains a local node, a local agent, a first remote node, and a first remote agent (1:59-65). The remote node transmits messages indicative of changes in the first remote desktop environment. The local node receives the messages and commands the system to modify a local representation of the window on the server desktop. Note that in 2:30-40 it is explicitly specified that nodes exchange window position, window size, and bordering information (e.g. 'region data') over the first virtual channel. The system obtains region data at certain intervals by various means, but can do so via the Enum_Windows command in Microsoft Windows™ based operating systems (3:60-4:12) at regular intervals (e.g. 50ms, etc., where this is user-selectable and the requirements are that 1) the period must allow the agent to rapidly determine when changes to its associated desktop environment have occurred and 2) it must be done without placing a significant computational burden on the node). Obviously, the faster the refresh interval, the more accurate it will be. In another embodiment, the system watches the message queues for the operating system to determine changes. In both cases, changes to region data are detected in this manner.)

-Gathering graphics data for the region, wherein the graphics data describe visual content of the region, and wherein the region data and the graphics data are

gathered synchronously so as to maintain an association of the region data and the graphics data; and (Panasyuk creates and maintains windows on the client (local) desktop matching those of the server in position, size, etc (see 6:60-7:1). The system of Panasyuk additional states: "...In some embodiments, window elements are transmitted as bitmaps from the server node 20..." This clearly states that window elements (e.g. graphical content) are transmitted as well as the other information. Further, the system of Panasyuk always transmits graphical data; if the system is not in "seamless windowing" mode it may not be as smooth or immediately resized as otherwise, but the graphical data is still automatically transmitted, as in Figure 2)

-Sending the region data and the graphics data to a client in a sequential order that represents the association between the region data and the graphics data such that the client can determine which graphics data and region data are related. (Panasyuk teaches that the region and graphics information can be transmitted on the same virtual channel (Column 2, lines 31 – 42), where such graphical data is obviously directly associated with the corresponding window attribute data (see 10:45-63, 11:25-40). See Panasyuk 6:60-7:1. **Clearly, if region and graphics data are transmitted on the same virtual channel, the client must be able to determine which graphics and region data are RELATED**. Specifically, if two virtual channels are combined into one virtual channel, then data will be **required** to be sent sequentially rather than simultaneously on two channels. Therefore, the requirement that the data be sent to the client in a sequential order that represents the association between the types of data would clearly be filled, since the receiving system must be able to decipher the recited

data to form corresponding windows that match the window attribute data sent to it. The system of Panasyuk additional states: "...In some embodiments, window elements are transmitted as bitmaps from the server node 20..." This clearly states that window elements (e.g. graphical content) are transmitted as well as the other information – see for example. Panasyuk would suggest using synchronization since (9:55-10:10) the system tracks the order of windows displayed. As such, when the window order changes, windows can become obscured or 'clipped' as a result on the server desktop, and the system then determines whether or not to display the graphical data based on whether or not it is obscured by applying clipping functions. One embodiment also determines whether or not such data is obscured at the time it is received. If it is, it is ignored. Turning back to 8:20-30, it is found that Panasyuk teaches that it is desirable to reduce network traffic by comparing the current window to the last window to determine whether or not any changes have occurred; if none have, no transmission is needed.)(Spencer clearly teaches synchronization verification of multiple applications across remote systems, where at least one local application window is synchronized with the at least one remote application window (Abstract, 2:45-3:7, Figs. 7C and 7G). Specifically, the system provides automated real-time feedback as to the synchronization of all windows and thusly allows synchronization between them (4:59-5:27))

Panasyuk teaches all the limitations of the instant claim except expressly teaching the use of synchronization between graphics and region data. However, it should be noted that the "association" is merely that the two forms of data are

synchronized. As noted above in the Response to Arguments section (which is incorporated by reference), Panasyuk at least suggests the benefits of synchronicity if not ever specifying it directly.

Spencer teaches that applications should be synchronized across computers and that multiple applications may be so synchronized (1:25-60), and that such synchronization is important and improves productivity (1:18-40). Panasyuk definitely teaches that the server and client have different programs and windows running on them, since they monitor the z-order and focus of windows and are concerned with clipping (3:60-4:40, 9:55-10:20). Therefore, it would be important to keep the applications synchronized between the remote server and the local client. For such synchronization to occur, it would need to be seamless. Therefore, the Spencer reference teaches that synchronizing applications in a transparent manner would be optimal.

However, Panasyuk would suggest using synchronization since (9:55-10:10) the system tracks the order of windows displayed. As such, when the window order changes, windows can become obscured or 'clipped' as a result on the server desktop, and the system then determines whether or not to display the graphical data based on whether or not it is obscured by applying clipping functions. One embodiment also determines whether or not such data is obscured at the time it is received. If it is, it is ignored. Turning back to 8:20-30, it is found that Panasyuk teaches that it is desirable to reduce network traffic by comparing the current window to the last window to

determine whether or not any changes have occurred; if none have, no transmission is needed.

Clearly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the system of Panasyuk such that when both the graphics data and region data are sent using one channel that such transmissions are synchronized with Spencer because Spencer provides methods for synchronizing applications and ensuring that such synchronization is maintained in real time in a low bandwidth and transparent manner (4:59-5:27), where clearly it provides improvement over prior art window sharing (7:44-50), where clearly decreasing the amount of network throughput required (8:20-30 Panasyuk) makes it more efficient and less of a drain on the remote node (4:3-10).

As to claim 20 specifically, the means are merely the corresponding software elements of the Panasyuk reference. The 'means for producing visual content' is merely the graphic hardware of the server itself, which it inherently must possess in the system of Panasyuk. The 'means for designating' is merely the Windows interface which transmits the window information, including size, z-order, and the like, as described therein. The remote agent of Panasyuk at the server constitutes a 'means for gathering', where the synchronicity is suggested by Spencer as above, and the data is transmitted in a synchronous manner as described in the rejection to claim 1 above, which is incorporated by reference. The 'means for sending' is the network link described in the Panasyuk reference. Next, the local and remote agents send data to each other.

Claim 7 is disclosed by the invention of Panasyuk such that both types of data are sent in sequential order such that the region data precedes the graphics data. Firstly, examiner notes that applicant has not shown any criticality to the order in which the data is transmitted; indeed, the independent claims do not specify such order. Next, it is noted that the system of Panasyuk requires the window attribute data to be able to form the corresponding local window (10:45-63) that matches that on the server desktop. Clearly, since the window attribute data is required to form the corresponding local window, then if the image data were received before, it would have to be buffered until the attribute data arrived. Therefore, it flows logically from the nature of the problem to be solved (Ruiz v. A.B. Chance Co., 357 F.3d 1270, 69 USPQ2d 1686 (Fed. Cir. 2004)) that when both types of data must be transmitted down a virtual channel where both types cannot be sent simultaneously (unlike the embodiments with two virtual channels) to send the window attributes information **first** such that the windows can be created at the receiving system to put the graphics information in.

Claim 8 is disclosed by the invention of Panasyuk such that the region data is sequenced to precede the graphics data using rules of a remoting protocol. Column 3, lines 1 – 10, states, "Alternately, client nodes 10 may connect to server node 20 using a proprietary data communications protocol, such as the ICA protocol manufactured by Citrix systems..." Clearly, the ICA protocol is a graphics remoting protocol, wherein furthermore the standard data type packets transmitted and described by the Panasyuk reference also constitute 'a remoting protocol', wherein the data sent will inherently conform to the rules of the remoting protocol, since it was generated by applications that

utilized that protocol. Thus, the rules of a remoting protocol are used while the synchronized region data precedes the graphics data are sent from the server to the client, as per the disclosure of that reference.

Claims 9, 14, 19, and 21 are disclosed by the invention of Panasyuk and Spencer. The rejection to claim 1 is incorporated by reference in its entirety. Column 6 describes the sending of window information from the server to the client. Lines 63 – 66 state, "In accordance with this information, the client agent 40 creates windows with the same size/position as the server node windows on the client node desktop." Thus, the client receives the region and graphics data from the server and displays the graphics data in accordance with the region data. Finally, these claims are broader (in some cases, as in claim 19, than the claims rejected under the rejection to claim 1 above. The courts have stated on numerous occasions that the omissions of an element and its function in combination is an obvious expedient if the remaining elements perform the same function as before (see In re Karlson (CCPA) 136 USPQ 184 (1963)). Therefore, such a broader version is an obvious expedient. Also, the means recited in claim 21 are the client and remote agents. Further clarification will be made in Examiner's Answer at applicant's request.

As to claim 26, as discussed in the rejection to claim 1, the region data is synchronized to the graphics data when sent.

Claims 10 – 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Panasyuk in view of Spencer as applied to claims 1 above, and further in view of Fyles (US 5,491,780).

Panasyuk and Spencer et al. disclose the invention in claims 10 – 13 except wherein various methods are used to reduce the amount of information sent from the server to the client display during conditions of low bandwidth. Spencer teaches that his invention uses little bandwidth, as noted above (4:59-5:27), but otherwise does not address the problem. The invention of Fyles discloses a system for efficient workstation screen updates that involves sending display information from a local computer to a remote computer. Fyles teaches of various ways of coping with low bandwidth situations while transmitting data from one computer to another. Column 1, lines 36 – 42, states, "A major problem in achieving this simultaneity between workstations is that the connections between the computers have a limited bandwidth. This is particularly so if telephone-based ISDN lines or similar are used. One way of coping with this is to use data compression, to reduce the amount of data that must be transmitted." Column 2, lines 17 – 27, states, "In a preferred embodiment each identified portion of the screen is represented by a rectangle, and it is then the contents of this rectangle that is transmitted to the other computers in the network. The use of a rectangle is computationally very simple, and turns out to correspond to a large majority of updates. In a few cases the update has a more complicated shape, so that possibly a large proportion of the rectangle transmitted has not been updated. This could be avoided by using other shapes, perhaps based on more sophisticated calculations to determine

very accurately the updated area of the screen for transmission." Thus, the system of Fyles solves the restrictions caused by low bandwidth situations by altering the shape of the area to be sent for updating to the remote computer to reduce the amount of data that is to be transmitted. It would have been obvious to one skilled in the art at the invention was made to further modify the invention of Panasyuk in view of Spencer to include altering the area to be sent to the client computer so that less data needs to be transmitted as taught by Fyles et al. One would have been motivated to make such a modification so that in cases where the bandwidth is too low to send the graphics and region data, the region data and graphics data may be altered in order to reduce the amount of bandwidth required by the transmission. It is also inherent in the invention of Panasyuk as modified by Spencer that a local computer may only transmit as much data to a remote system as allowed by the available bandwidth between the two. During situations of low bandwidth, only a reduced amount of data can be transferred.

Claims 2-3, 5-6, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Panasyuk and Spencer as applied to claims 1 and 25 above, and further in view of Schneider et al (6,304,895 A).

Panasyuk and Spencer et al. disclose the invention in claims 2, 5, and 27 except wherein the region and graphics data are synchronously gathered in a single driver. The system of Schneider controls the viewing of a display from a local computer on a target device by transmitting GDI calls. Figure 3a shows an implementation of the invention in which screen data is sampled and captured for transmission. Column 6,

lines 65 – 67, and Column 7, lines 1 – 7, state, "Instead, the digitizer control application 220 periodically requests (through the device driver 210) that a whole screen of data be sampled. The digitizer control application 220 then draws the whole captured screen to its local screen using Windows GDI calls. The remote control software application 200 captures those GDI requests and retransmits them to the controlling computer 12. The client software on the controlling computer 12 then re-executes the commands so that the screen of the controller 50 and the screen of the controlling computer 12 show the same image." Thus, the device driver and control application of Schneider et al. collect the screen data, which includes region and graphics data to be stored in the data structure of Spencer for synchronous transmission. It would have been obvious to one skilled in the art at the invention was made to further modify the invention of Panasyuk in view of Spencer so that the region and graphics data are synchronously gathered by the display driver. One would have been motivated to make such a modification to Panasyuk and Spencer so that the server and client computers both share the same image as a result of transmitting the captured GDI requests from the device driver as taught by Schneider et al.

Panasyuk discloses claim 3 in that the server and client node communicate via one of a list of industry-standard protocols. Column 3, lines 1 – 9, states, "Client nodes may communicate with server node 20 via any of a number of industry-standard data communications protocols including, but not limited to, TCP/IP, IPX/SPX, NetBEUI, or serial protocols. Alternatively, client nodes 10 may connect to server node 20 using a proprietary data communications protocol such as the ICA protocol manufactured by

Citrix Systems, Inc. of Fort Lauderdale, Fla. or the RDP protocol manufactured by Microsoft Corporation of Redmond, Wash." Therefore, the region and graphics data to be sent from the server to the client is gathered and stored in a format of a remoting protocol.

Panasyuk and Spencer disclose the method of claim 6 except wherein the display driver synchronously gathers graphics data by gathering drawing commands issued to a graphics device interface subsystem of an operating system of the server. Schneider teaches of gathering GDI drawing commands for transmission to a client from a server. Column 3, lines 29 – 32, states, "In general, the system of the present invention transmits a GDI representation of digitized video signals as well as mouse and keyboard signals over a communications link." Column 6, line 67, and column 7, lines 1 – 7, state, "The digitizer control application 220 then draws the whole captured screen to its local screen using Windows GDI calls. The remote control software application 200 captures those GDI requests and retransmits them to the controlling computer 12. The client software on the controlling computer 12 then re-executes the commands so that the screen of the controller 50 and the screen of the controlling computer 12 show the same image." Thus, the graphics data is gathered by collecting drawing commands issued to a graphics device interface subsystem. It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the method of Panasyuk in view of Panasyuk and Spencer to include the method of Schneider such that the graphics data is gathered by collecting drawing commands issued to a graphics device interface subsystem. One would have been motivated to

make such a modification to the invention of Panasyuk in view of Spencer so that upon sending the graphics data to a client computer, only the drawing commands are sent to the client instead of sending bitmap images. This reduces the amount of information to be communicated and thus reduces the amount of bandwidth needed to transmit screen data from the server to a client.

Claim 15 is rejected under 35 USC 103(a) as unpatentable over Panasyuk in view of Spencer as applied to claim 1, and further in view of Sutou et al (US PGPub 2002/0035627 A1).

As to claim 15, Panasyuk and Spencer as applied to claim 1 disclose the system of claim 15 except wherein a display driver collects the synchronously gathered region and graphics data region and a region and graphics gathering module gathers region and graphics data. The system of Sutou provides a means for remote controlling a terminal, where the display driver contains hooks that are used to capture the drawing data corresponding to the full window [0061].

It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the invention of Panasyuk to include a device driver and control application collect the region data and graphics data and a remote control software application to capture drawing data so as to synchronously gather region and graphics data for a display, as with Sutou. One would have been motivated to make such a modification so that graphics data being sent from a server to a client

would be more efficient and reduce the amount of data to be transmitted, thereby to make a prompt response to the display 2B of the control terminal 100B even in the use of a communication line having a relatively low transmission rate – Sutou [0061]. Additionally, gathering region and graphics data in the same control software application module allows for synchronicity to be achieved between the data since they are both gathered from the same captured screen in the application.

Claims 16, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Panasyuk in view of Spencer and Sutou as applied to claim 15 above, and further in view of Eagen.

Panasyuk in view of Spencer and Sutou disclose the engine in claims 16 and 18 except wherein a data output scheduler is associated with the display driver to send the region and graphics data to a client in a sequence and comprising a data gathering scheduler to schedule synchronous gathering a region and graphics data. Panasyuk teaches of issuing commands periodically at a predetermined rate to determine when changes to the server's desktop have occurred. Column 4, lines 3 – 8, states, "The agents 30, 40 can issue the Enum Windows command every 50 milliseconds, every 100 milliseconds, every 500 milliseconds, or at any period that allows the agent 30, 40 to rapidly determine when changes to its associated desktop environment have occurred without putting a significant computational burden on the node." The apparatus of Eagen includes presenting and removing of windows from a host terminal to a workstation. Column 8 discloses a display data manager that constructs a data stream

according to a given format when information is to be displayed at a remote terminal. Lines 25 – 32 state, "When an applications program needs to communicate with a remote terminal it calls up an applications program interface routine, one form of which is identified as a "display data manager." When information is to be displayed at a remote terminal, the display data manager constructs a data stream according to a particular format, and transmits this data stream to a workstation controller." Thus, the display data manager performs the tasks of output scheduler and gathering scheduler by constructing a data stream according to a particular format to transmit data to a workstation controller. It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the invention of Panasyuk in view of Spencer and Sutou to include a display data manager to perform the tasks of an output scheduler and a data gathering scheduler as taught by Eagen. One would have been motivated to make such a modification so that the gathering and sending of the graphics and region data is performed periodically at a predetermined rate to coincide with the periodic updates of the server's desktop environment in Panasyuk.

Panasyuk in view of Spencer and Sutou disclose the engine in claim 17 except wherein a bandwidth compensator maintains security with respect to the synchronized region and graphics data during a condition of low bandwidth. Eagen discloses a communications device for transmitting data to a target device. Column 4, lines 65 – 67, and column 5, line 1, state, "The controlling computer 12 also includes a communications device 53 for communicating with the target device(s). Such a device 53 may include (1) a modem for connecting via a telephone connection, (2) a wireless

transceiver for wirelessly communicating, and (3) a wired adapter (e.g., an Ethernet or token ring adapter)." Column 3, lines 56 – 67, describes the contents of the controlling computer that contains the communications device as containing a CPU. It is obvious to one having ordinary skill in the art that a CPU and communications device can be combined to create a bandwidth compensator such that the system is aware of conditions of low bandwidth. It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the invention of Panasyuk in view of Spencer and Sutou to include a bandwidth compensator. One would have been motivated to make such a modification so that in conditions of low bandwidth, the security with respect to the synchronized region and graphics data is maintained and no unintended regions of the graphics data will be displayed on the target computer.

Claims 4 and 22-23 are rejected under 35 U.S.C. 103(a) as unpatentable over Panasyuk in view of Spencer as applied to claim 1, and further in view of Grossman (US 5,682,486).

As to claim 4,

Panasyuk discloses the method of claim 4 except wherein the region data is synchronously gathered by a display driver-level window object created to contain the shape and position information. Grossman teaches of using a display driver-level window object to gather and contain the shape and position information of a shared object in figure 4. It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the invention of Panasyuk so that the

region data is synchronously gathered by a display driver-level window object to contain the shape and position information. One would have been motivated to make such a modification to the invention of Panasyuk so that there existed a record containing all the region data of the shared window between the server and client, thus facilitating the synchronicity between the region data and the graphics data upon sending the shared window to a client by sending the region data in advance of the graphics data in the data structure.

As to claims 22 and 23,

Panasyuk and Spencer disclose claim 22 as the data is streamed between computers (a client and a server, a remote terminal and a local terminal). Obviously, as noted in the rejection to claim 1, which is incorporated by reference, the system of Panasyuk transmits window position, size, and graphics data in the window, which clearly constitute 'geometry of a visual region to be remotely displayed' as defined in applicant's specification and in claim 1. Clearly, as noted therein, the system of Panasyuk sends graphic data at regular intervals, as set forth with the Enum Windows command, where the region data would occur in every regular time interval with the update.

The invention of Grossman describes the movement of windows or icons in a transport region from one monitor to another. Figure 4 shows a data structure that defines the transport region and the destination of the transported icon or window. As shown in the data structure, the coordinate values of the transport region and the coordinate values for the target position are synchronously sent with the graphics data

as represented by the icon identification number and class identification number. Column 4, lines 66 – 67, states, "Also, each graphical image within a class is uniquely identified by its icon identification number 440." Column 6, lines 6 – 10, states, "The "icon" to be transported need not be static but may consist of animated images or TV broadcasts/signals displayed in a window or icon. The target monitors may be local (e.g., on the same desktop) or in a remote location connected via a network." The icon identification number represents graphical data in that it identifies the graphical image being sent. Thus, the region data is synchronously gathered with the graphics data in that the two are obtained for transmission once they are moved into a designated region on the display. Therefore, the region data precedes the graphics data in the data stream structure. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Panasyuk to include synchronously gathering and sending the region and graphics data for displaying a region of a server desktop remotely on a client display as taught by Grossman et al. One would have been motivated to make such a modification to the invention of Panasyuk with Grossman et al. so that while sharing a window between the server and client displays, the graphics being shared will always correspond to the intended region and will not display graphics data not intended to be sent to the client.

As to claim 23, Spencer clearly states that synchronicity is maintained, as does Grossman, and this limitation is covered in the material incorporated by reference.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Woods whose telephone number is 571-272-7775. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on 571-272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Eric Woods

June 1, 2006

KEE M. TUNG
SUPERVISORY PATENT EXAMINER